

THE CLAIMS:

1. (Previously Presented) A pattern identification method of identifying a pattern of input data by hierarchically extracting features of the input data, comprising:

using a processor to perform the steps of:

a first feature extraction step of extracting a feature of a first layer from the input data;

an analysis step of analyzing a distribution of a feature extraction result in the first feature extraction step;

a calculation step of calculating a respective likelihood of extracting from the input data a feature of one of a plurality of categories for features of a second layer, each feature of the second layer corresponding to a combination of features of the first layer, on the basis of the distribution analyzed in the analysis step;

an activation step of selectively activating at least one extraction module, among a plurality of extraction modules for extracting features of respective categories, whose calculated likelihood of the category for the feature of the second layer to be extracted from the input data is not less than a predetermined value;

a second feature extraction step of extracting a feature of the second layer from the input data by the selectively activated extraction module; and

a storing step of storing the extracted feature of the second layer in a memory.

2. (Cancelled)

3. (Previously Presented) The method according to claim 1, wherein in the first or second feature extraction step, a feature obtained by performing a predetermined transformation to a predetermined feature is extracted.

4. (Previously Presented) The method according to claim 1, further comprising a re-extraction step of re-extracting a feature of a lower layer on the basis of a feature extraction result of a higher layer in the second feature extraction step.

5. (Previously Presented) The method according to claim 1, wherein in the analysis step, a distribution of each of a plurality of feature extraction results is analyzed, and a relative relationship between analytical results is analyzed.

6. (Previously Presented) The method according to claim 1, wherein in the analysis step, a distribution within a specific range of at least one of a plurality of feature extraction results is analyzed.

7. (Previously Presented) The method according to claim 1, wherein in the analysis step, whether the feature is extracted or not extracted within a predetermined range in a distribution of at least one of a plurality of feature extraction results is analyzed.

8. (Previously Presented) The method according to claim 1, wherein in the analysis step, a barycenter of a distribution of at least one of a plurality of feature extraction results is analyzed.

9. (Previously Presented) The method according to claim 1, wherein in the analysis step, a size of a range within which the feature is extracted or not extracted in a distribution of at least one of a plurality of feature extraction results is analyzed.

10. (Previously Presented) The method according to claim 1, wherein in the analysis step, a likelihood of at least one of a plurality of feature extraction results or a total of feature detection levels is analyzed.

11. (Previously Presented) The method according to claim 1, wherein the pattern identification is performed on a presence/absence of a face image contained in the input data.

12. (Previously Presented) The method according to claim 1, wherein the pattern identification is performed on a position of a face image contained in the input data.

13. (Previously Presented) A pattern identification apparatus for identifying a pattern of input data by hierarchically extracting features of the input data, comprising:

first feature extracting means for extracting a feature of a first layer from the input data;

analyzing means for analyzing a distribution of a feature extraction result obtained by said first feature extracting means;

calculating means for calculating a respective likelihood of extracting from the input data a feature of one of a plurality of categories for features of a second layer, each feature

of the second layer corresponding to a combination of features of the first layer on the basis of the distribution analyzed by said analyzing means;

activation means for selectively activating at least one extraction module, from among a plurality of extraction modules for extracting features of respective categories, whose calculated likelihood of the category for the feature of the second layer to be extracted from input data is not less than a predetermined value;

second feature extracting means for extracting a feature of the second layer from the input data by the selectively activated extraction module; and

storing means for storing the extracted feature of the second layer in a memory.

14. (Previously Presented) A computer-readable storage medium on which is stored a pattern identification program for allowing a computer to identify a pattern of input data by hierarchically extracting features of the input data, comprising:

a first feature extraction step of extracting a feature of a first layer from the input data;

an analysis step of analyzing a distribution of a feature extraction result in the first feature extraction step;

a calculation step of calculating a respective likelihood of extracting from the input data a feature of one of a plurality of categories for features of a second layer, each feature of the second layer corresponding to a combination of features of the first layer, on the basis of the distribution analyzed in the analysis step;

an activation step of selectively activating at least one extraction module, among a plurality of extraction modules for extracting features of respective categories, whose calculated

likelihood of the category for the feature of the second layer to be extracted from the input data is not less than a predetermined value;

a second feature extraction step of extracting a feature of the second layer from the input data by the selectively activated extraction module; and

a storing step of storing the extracted feature of the second layer in a memory.

15. (Previously Presented) The method according to claim 1, wherein, in the second feature extraction step, the feature of the second layer is extracted on the basis of a feature extraction result in the first layer and a feature extraction result in a layer other than the first layer.

16. (Previously Presented) The method according to claim 15, wherein the layer other than the first layer is a layer lower than the first layer.

17. (Previously Presented) The method according to claim 15, wherein the layer other than the first layer is the second layer.

18. (Previously Presented) The method according to claim 15, further comprising an integrating step of integrating feature extraction results by a plurality of feature extractors in the same layer.

19. and 20. (Cancelled)